AMENDMENTS TO THE CLAIMS

The listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1–4. (Cancelled)

5. (Currently amended) A method of attaching a flip-chip to a substrate, the flip-chip including a first plurality of electrical contacts with lateral sides and the substrate including a second plurality of electrical contacts with lateral sides, the method comprising:

forming a separate insulating layer of an insulating material on the entire lateral sides of each of the first plurality of electrical contacts and on the entire lateral sides of the second plurality of electrical contacts; and

joining the flip-chip to the substrate using a matrix of insulating material including conductive particles to electrically connect the first plurality of contacts with the second plurality of contacts.

6. (Previously presented) The method of claim 5 wherein the insulating layer on the lateral sides of the first plurality of electrical contacts is formed by coating a layer of insulating material onto a surface of the flip-chip which includes the first plurality of electrical contacts, curing the layer, and removing portions of the layer overlying the first plurality of electrical contacts by polishing.

7. (Previously presented) The method of claim 6 wherein the first plurality of electrical contacts are polished by chemical mechanical polishing.

8. (Previously presented) The method of claim 6 wherein the first plurality of electrical contacts are polished using a backlapping tool.

9. (Previously presented) The method of claim 5 wherein the insulating layer on the lateral sides of the second plurality of electrical contacts is formed by coating a photosensitive layer of insulating material onto a surface of the substrate which includes the second plurality of electrical contacts, exposing portions of the photosensitive layer which do not overlie the electrical contacts to electromagnetic irradiation in order to cure the portions of the photosensitive layer which do not overlie the electrical contacts, and then removing uncured portions of the photosensitive layer to expose the second plurality of electrical contacts.

10. (Previously presented) The method of claim 5 wherein joining the flip-chip to the substrate using a matrix of insulating material including conductive particles comprises joining the flip-chip to the substrate using an anisotropic conductive paste.

11. (Previously presented) The method of claim 5 wherein joining the flip-chip to the substrate using a matrix of insulating material including conductive particles comprises joining the flip-chip to the substrate using an anisotropic conductive film.

12. (Currently amended) A flip-chip assembly comprising:

a flip-chip having a first surface including a first plurality of electrical contacts, the first plurality of electrical contacts including lateral sides;

a first electrically insulating film formed on the entire lateral sides of the first plurality of electrical contacts;

a substrate having a second surface including a second plurality of electrical contacts, the second plurality of electrical contacts including lateral sides, and the second plurality of electrical contacts facing the first plurality of electrical contacts;

a second separate electrically insulating film formed on the entire lateral sides of the second plurality of electrical contacts; and

a matrix of insulating material including electrically conductive particles between the flip-chip and the substrate.

13. (Previously presented) The assembly of claim 12 wherein the matrix of insulating material including electrically conductive particles comprises an anisotropic conductive paste.

14. (Previously presented) The assembly of claim 12 wherein the matrix of insulating material including electrically conductive particles comprises an anisotropic conductive film.

15. (Previously presented) The assembly of claim 12 wherein the substrate is a printed circuit board.

16. (Previously presented) The assembly of claim 12 wherein the first plurality of electrical contacts comprise gold bumps.

17. (Previously presented) A method of attaching a flip-chip to a substrate, the flip-chip including a first plurality of electrical contacts with lateral sides and the substrate including a second plurality of electrical contacts with lateral sides, the method comprising:

forming an insulating layer on the lateral sides of the first plurality of electrical contacts by coating a layer of insulating material onto a surface of the flip-chip which includes the first plurality of electrical contacts, curing the layer of insulating material, and removing portions of the layer of insulating material overlying the first plurality of electrical contacts by chemical mechanical polishing to expose the first plurality of electrical contacts;

forming an insulating layer of an insulating material on the lateral sides of the second plurality of electrical contacts by coating a layer of photosensitive insulating material onto a surface of the substrate which includes the second plurality of electrical contacts, exposing portions of the layer of photosensitive insulating material which do not overlie the electrical contacts to electromagnetic irradiation in order to cure the portions of the layer of photosensitive insulating material which do not overlie the electrical contacts, and then removing uncured portions of the layer of photosensitive insulating material to expose the second plurality of electrical contacts; and

joining the flip-chip to the substrate using a matrix of insulating material including conductive particles.

18. (Previously presented) The method of claim 17 wherein joining the flip-chip to the substrate using a matrix of insulating material including conductive particles comprises joining the flip-chip to the substrate using an anisotropic conductive paste.

19. (Previously presented) The method of claim 17 wherein joining the flip-chip to the substrate using a matrix of insulating material including conductive particles comprises joining the flip-chip to the substrate using an anisotropic conductive film.